PENNSYLVANIA

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THE STATE DEPARTMENT OF HEALTH

Samuel G. Dixon, M. D., LL. D., Sc. D.,
COMMISSIONER.

ADMINISTRATION IN TYPHOID EPIDEMICS, AS CARRIED OUT BY THE PENNSYLVANIA STATE DEPARTMENT OF HEALTH.

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PENNSYLVANIA

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ADMINISTRATION IN TYPHOID EPIDEMICS, AS CARRIED OUT BY THE PENNSYLVANIA STATE DEPARTMENT OF HEALTH.

The measures to determine and to abate the sources of an epidemic and to prevent secondary cases embrace the essential duties of the State Department of Health in that one field.

However, there is great variation of administrative procedure in each epidemic because of differences in local civil government and because of great variations in the sources and methods of handling the transmitting agents.

In cities and boroughs and in first class townships local Boards of Health are maintained, each with ordinances peculiar to the community. In second class townships the State Department of Health has direct control. Epidemics of typhoid fever, for the most part, occur in the cities and boroughs and it is here that the largest amount of epidemic work has been performed.

During the first ten years of its existence the Department studied and caused the suppression of upwards of 170 epidemics of this disease, of which 111 were definitely water borne and 25 were milk borne, while only 29 were transmitted by other agents such as uncooked shellfish, uncooked vegetables, flies and carriers.

Administrative work is shared in by the Department and the local Health authorities; the latter perform the usual work incidental to the receipt of reports, placarding and disinfecting. The representatives of the State Commissioner of Health investigate the sources, investigate the general sanitary conditions, assist the local physicians, study the special features of the epidemic, both clinically and in the laboratory, secure the abatement of the source and assist the local Board of Health in general preventive work. In other words, the Department's relations are, for the most part, purely investigative and advisory, unless the epidemic should occur in a second class township or in a municipality not having an active Board of Health.

The work, for the most part has been under the direction of a Medical Officer of the Department. Where there was no question that the disease was water borne, when the Commissioner of Health had personal knowledge of the factors leading to water transmission, when the local application of preventive medicine was unquestioned, the presence of the Medical Officer was at times unnecessary. Under these conditions the water supplies were studied and corrected by engineers of the Department. However, the work so performed has necessarily been limited to waters supplied by private or municipally owned water plants.

The methods necessary for the suppression of an epidemic are adapted to each outbreak exactly as the diagnosis and treatment of a single patient must be individual. In fact, the handling of an epidemic may be compared to the methods used in treating a single patient, the factors considered being the etiology, the epidemiologic diagnosis, the complications and the treatment, the latter two being, in part, medical, in part, sociologic and, in part, engineering.

To accomplish this a Medical Officer, engineers, nurses, sanitary inspectors, and clerks in proportion to population and need are sent by the Commissioner of Health to the scene of the epidemic.

An organization for work is formed under the direction of the Medical Officer and each person is assigned for duty in relation to his training and adaptability. This is particularly necessary in the collection of epidemiologic data.

The latter is collected on the following form.

Form 66. No..........

COMMONWEALTH OF PENNSYLVANIA.

DEPARTMENT OF HEALTH.

TYPHOID CENSUS CARD.

Patient, ... Borough or Township .... County, ...
City or town, ...
Householder, ... Address, ...
(Private, Boarding, Apartment, Hotel, Store.)*
How long has patient lived in house?... Previous address, ...
From, ... To, ...
Date. Date.
Age, ...Male. Female. Black. White. Married. Single. Widowed. Nationally, ...
Occupation, ...Kind of work, ...Specific duties, ...
Name and address of employer or school, ...
Doctor's name and address, ...Date first visit, ...
Where taken sick, ...Date taking to bed, ...Placarded, ...
First feeling sick, ...Reported, ...
Date entering Hospital, ...Name of Hospital, ...
Nurse (Trained or Practical?) Yes. No. Nurse's name, ...
Nursing since? ....
Population of house, ...Other cases in house. Yes. No.
Suspects in household? †Yes. No. ....
Visitors to premises within 30 days before onset? Yes. No. Names and addresses, ...
....
Any visitor ever have typhoid?.........................When?.........................

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*Cross out the words that do not apply. †Give details.

Patient's visits in 30 days before onset, ...When?...............

Picnics, fairs, etc. attended. Yes. No. Where?............................When?...............

Known case in or near place visited? ....

Visits to other cases? Yes. No. Name. ....Address. ....

What food or drink taken there?...Date,..............

Servants contact with typhoid cases? Yes. No. Case nearby? Yes. No. Distance, ...

Sick room screened? Yes. No. Flies in sick room?................(None, few, many, swarms).

Water used at home,......................................At work,......................
(Filtered, bottled, spring, pump, cistern, boiled).

Sources other water used in 30 days before onset,......................................

Bathing (river, creek, pond, bath house), ...
(Name and location).

Milk bought from, ...In Bottles? How long?........................
House vessels? How long?..................

Milk Pasteurized? Yes. No. Unboiled bottles returned? Yes. No.
Never. Never.

Sources of other milk in 30 days before onset?..

Milk or Milk Products sold? Yes. No. To Whom?...
Use of milk. Habitual, occasional. Use of cream. As beverage, with cereals, tea, coffee, dessert.
(**Milk, buttermilk,** cottage cheese, butter).
....

Ice cream, ice cream soda or cones in 30 days before onset? Yes. No. Retailer's name?........

Raw oysters or clams in 30 days before onset? Yes. No. Retailer's name?..................

Raw vegetables or small fruits in 30 days before onset? Yes. No. Retailer's name?...........
(Water cress, celery, lettuce, radishes, onions, berries, grapes, etc.)

Name of dealer supplying ice?...Natural ice?
Artificial ice?

Butter bought from.......................... ....Wrapped? Yes. No.

Eating utensils and drinking cups boiled? Yes. No. Nurse disinfects hands? Yes. No.

How? ....

Sewer connection? Yes. No. Cesspool? Yes. No. Privy? Yes. No. Ground pollution? Yes. No.

Stools and urine disinfected? Yes. No. How?..

Stools or urine exposed to flies or domestic animals? Yes. No.

Disposal of stools and urine?...
(Sewer, cesspool, privy, buried, surface of ground.)

Disposal of garbage?...........................Kitchen waste?..........................

Bath water?....................................Laundry water?..........................

Unslaked or chloride of lime used? Yes. No. Other disinfectants? Yes. No.

How and where used?..

Who does cooking?......................Ever have typhoid?........Widal test? Yes. No.
Date.
Result.......

Patient's idea of source of infection,..

Patient given typhoid vaccine? Yes. No. Sensitized vaccine? Yes. No.
When and how many doses,....................

Circular left? Yes. No.
....

Contacts given vaccine? Yes. No. When?...

Family, wealthy, comfortable, poor, needy?...

House: **Good**, fair, bad. Yard: Good, fair, bad. Water closet, condition?.................

..............................191.... Data obtained by.......................

Remarks:—...
....
....
....

The following circular is also distributed:

Form 2

COMMONWEALTH OF PENNSYLVANIA.

DEPARTMENT OF HEALTH.

RULES TO BE OBSERVED IN THE CARE AND MANAGEMENT OF CASES OF

TYPHOID FEVER

WIPE OUT TYPHOID BY KILLING THE GERMS IN THE BED-PAN.

The patient should be confined to one well lighted, well ventilated room, with windows screened against flies and other insects, preferably a room with southern exposure, and as remote as possible from other occupied rooms in the house.

This room should be stripped of fancy curtains, carpets, upholstery, and all other furniture not necessary for the comfort of the occupants.

Soiled bed and body clothing, including handkerchiefs and cloths used for collection of discharges from the nose and mouth, or those soiled by vomited matter, should be thoroughly disinfected. It is better to use for the nose and mouth pieces of old, soft, clean cloth and to burn them at once. Disinfection may be done by placing in cold water and then boiling for thirty minutes, or by use of some one of the following chemical disinfectants:

Make up disinfecting solutions by adding one half pound of Chloride of Lime (Chloride of Lime or Bleaching Powder) to one gallon of water, or three teaspoonfuls of Liquor Cresolis Compostius or three teaspoonfuls of Creolin or eight teaspoonfuls of a solution of Formaldehyde (at least 37 per cent.) to a pint of water. The solution of Chlorinated Lime is preferred for discharges.

A tub or other vessel containing a sufficient quantity of one of the disinfecting solutions should be kept in a convenient place for soaking bed and body linen.

Place all such clothing in this vessel immediately upon its removal from the bed or body of the patient, and allow it to soak for at least three hours after which it should be boiled.

Do not carry such infected clothing through the house, or store it with other soiled material.

Remnants of food left by the patient should be burned.

The nurse, or attendant, should not use eating utensils or drinking vessels from the sick room nor should she permit others to do so until they have been boiled for at least half an hour.

A basin or other vessel containing Bichloride of Mercury Solution, (one tablet to one quart of water) or other good antiseptic solution should be kept constantly made up so that the hands may be washed immediately after handling any secretion or clothing from the patient. The Bichloride of Mercury is a strong poison and the tablets should be kept in a safe place. As the solution corrodes metals it should be made in a receptacle of earthenware or in a wooden tub, or well enamelled ware may be used.

KILL THE TYPHOID GERM.

The discharges from the bowels, the urine, the expectoration, and any vomited matter should be disinfected by the addition of a quantity of standard solution of Chlorinated Lime (Chloride of Lime or Bleaching Powder), or Creolin, more than sufficient to cover the discharges, or if the latter are liquid, by adding a quantity equal in bulk.

The contents should be thoroughly stirred, breaking up any solid masses, and the vessel with contents should be allowed to stand at least half an hour before emptying.

Never empty the discharges upon the surface of the ground or into a stream.

If a sewerage system exists, use it, but only after a thorough disinfection of the discharges.

If a privy well exists, use that, or bury the disinfected material one foot below the surface of the ground and not less than one hundred feet from a well or water course. It must be out of the reach of dogs and rats as they will carry the filth on their feet into dwellings.

Add a disinfecting solution to all water that has been used for bathing the patient, and dispose of it in the same manner as the body discharges.

The air of the sickroom cannot be disinfected during occupancy by the patient. The practice of hanging up cloths saturated with carbolic acid or of placing saucers of Chlorinated Lime or other disinfectants in the sick room is not only annoying to the patient, but utterly useless and often injurious.

An abundance of fresh air should be admitted to the room, but the patient should be protected from direct draughts.

Flies must be carefully excluded from the room and any that find entrance should be killed.

Dogs, cats, and other household pets should be quarantined and disinfected, and any found running loose should be killed.

Kissing the patient should be prohibited.

Boil all water used for domestic purposes.

Individual milk bottles must not be taken into or removed from the premises during the existence of the disease.

The householder should set out a vessel to receive the milk, and the person delivering the milk should pour it into such vessel without touching the receptacle with his hand, or with the vessel from which the milk is poured.

Visitors should be excluded from the sick room. Aside from their disturbing influence on the patient they may through carelessness contract the disease themselves.

Follow these rules during the entire illness, do not relax them during convalescence, but continue until entire recovery, as the specific germ of typhoid may exist in the stools or urine of typhoid patients for at least four weeks after the disappearance of the fever.

After the removal of the patient, the sick room and everything it contains should be thoroughly cleansed as outlined in form 18, *Sanitary Cleaning.* Personal disinfection with formaldehyde gas is not essential after typhoid fever or paratyphoid fever if careful disinfection of discharges and bedding has been faithfully done throughout the illness. (This disinfection will be done by the Department's Health Officer on request from physician or householder). The bed and body clothing should be disinfected by boiling in the same water in which they were placed when removed or should be soaked for three hours in one of the antiseptic solutions already described.

When premises from which milk is sold are quarantined for typhoid fever, the sale of milk from such premises can be continued only under the following conditions:

Those engaged in the production of milk or milk products, or in the cleansing or care of utensils used for this purpose, must be disinfected, together with their clothing and required to keep out of the infected house until a certificate of recovery or death has been issued by the physician in charge, and a certificate of disinfection has been granted by the Health Officer.

Unless such precautions are observed, the County Medical Inspector shall order that the proprietors and their agents shall either discontinue the marketing of milk and milk products or shall arrange for the transfer of the stock to other premises free from the above mentioned disease.

The Act of May 28, 1915, requires health authorities to place a warning placard, in a conspicuous place, on all premises where Typhoid Fever or Paratyphoid Fever exists.

SAMUEL G. DIXON,
Commissioner of Health.

Revised May, 1917.

EXTRACT FROM THE ACT OF MAY 28, 1915.

Section 26. Any person who shall remove, deface, cover up, or destroy, or cause to be removed, defaced, covered up, or destroyed, any placard relating to any of the diseases mentioned in section two of this act, shall for every such offense, upon conviction thereof in a summary proceeding before any magistrate or justice of the peace of the county wherein such offense was committed, be sentenced to pay a fine of not less than ten ($10) dollars, or more than one hundred ($100) dollars, to be paid to the use of said county, and costs of prosecution, or to be imprisoned in the county jail for a period of not less than ten days or more than thirty days, or both, at the discretion of the court; any person other than the attending physician or trained nurse who shall enter or leave any quarantined premises without having secured permission from the health authorities, or who shall violate any of the quarantine restrictions imposed by this act, or by the rules and regulations of the health authorities of any city, borough or township of the first class, or the rules and regulations of the State Department of Health, or who shall interfere with a health officer or any other duly qualified agent of the State Department of Health, or of any local board or department of health, in the discharge of his official duties in the placarding, quarantining, disinfecting, or releasing from quarantine of any premises, or in the investigation of any alleged case of a quarantinable disease, shall for every such offense, upon conviction thereof in a summary proceeding before any magistrate or justice of the peace of the county wherein said offense was committed, be sentenced to pay a fine of not less than fifty ($50) dollars, or more than one hundred ($100) dollars, to be paid to the use of the said county, and costs of prosecution, or to be imprisoned in the county jail for a period of not less than ten or more than thirty days, or both, at the discretion of the court.

Houses with cases of typhoid are placarded with this notice.

Placard 22.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH

TYPHOID FEVER!

All persons are notified of the presence of this communicable disease and are warned of the danger of visiting or coming in contact with those sick with it.

No person other than those authorized by the Department of Health shall remove this placard. Any person or persons defacing, covering up or destroying this placard render themselves liable to the penalties of the law.

"Act of Assembly approved May 14, 1909, provides that anyone violating the provisions of this Act, upon conviction thereof may be sentenced to pay a fine of not less than $10.00 or more than $100.00, to be paid to the use of said county, or to be imprisoned in the county jail for a period of not less than ten days or more than thirty days, or both, at the discretion of the court."

By order of the Department of Health,
SAMUEL G. DIXON, M. D.,
Commissioner of Health.

....
Health Officer.

....
Address.

The data on each subject are tabulated in relation to the source of infection and this information is the basis of diagnosis of the source and of the direction of treatment.

It is imperative to form a definite opinion at once. For that reason a census of all cases already reported to the local Health Officer, and of "suspects," whose names are given by physicians, is made within a few hours after the arrival of the Department officers and the correction of the source is begun at once. If the source seems in any way indefinite, *all* probable transmitting agents are placed under control.

The data relative to the sanitation of infected premises are collected during the census and this information is supplemented by a general sanitary survey and careful studies of sociologic conditions.

The Medical Officer in charge consults with the local Board of Health and physicians practicing in the community, usually in combined meeting. In turn, opportunity is given by the physicians for clinical and laboratory studies to be made of all cases. The data so collected is of mutual value, both to physicians and health authorities.

Studies have been made of variations of clinical expressions, of incidental bacillary dysentery, of concomitant infections, especially by the paratyphoid group and by the *Bacillus enteritidis.* The agglutination characteristics of blood sera from large groups of cases and the isolation of pathogenic micro-organisms from blood, feces, milk, oysters, and water have been extensively studied.

These data have been harmonized with the epidemiologic findings giving valuable information relative to etiology and transmission.

Studies on the use of antityphoid vaccine have been made in large groups of persons exposed to infection and the subsequent morbidity recorded. Incidental studies have shown the large morbidity from other members of the typho-colon group and have demonstrated the frequency with which cases of such infections have been treated as "gastric fever," "catarrhal fever," "biliousness," and various inflammations of the intestinal tract.

The methods of treatment, if water is the source, are under the direction of engineers of the Department; if milk, the responsible dairy or dairy farm is required to discontinue delivery or shipment. It is usually found that a patient infecting a milk supply has caused the epidemic before calling a physician or before a diagnosis has been made. In like manner, other sources are studied and treated through the usual authority of the Health Officer.

The assistance given to local Boards of Health is, for the most part, advisory and is usually and largely in relation to detail work. Circulars of instructions and other immediately necessary printed materials are supplied by the State Commissioner.

The Board of Health or a Citizens' Committee usually assumes responsibility for the establishment of Emergency Hospitals and district Nurse Service. These latter measures are important in the prevention of secondary cases as well as for the influence in the family for greater care of patients and control of infecting agents.

In order to establish an Emergency Hospital many types of buildings have been adapted to the need—warehouses, club houses, churches, town halls, fire department houses and private residences being among the types of buildings used.

A list of the necessary equipment is estimated on the probable morbidity and number of cases which would be treated in such emergency institutions. Local philanthropic organizations or local governmental bodies assume the financial responsibility and order the things suggested on the list. The Commissioner of Health offers the services of the State Supervising Nurses to superintend both the Emergency Hospital and the District Nurse Service. Other nurses on duty in both branches of the service are paid for from the same sources as the hospital equipment. No difficulties have been met in this relation.

The District Nurse Service is offered to the afflicted families, at the direction of the attending physicians and at the same time each nurse collects data relative to the sick room and general domestic hygiene. By the first service the comfort of many patients has been maintained at a high level and the seriousness has been reduced to a minimum. By the collection of data on domestic hygiene, valuable information relative to the immediate family needs, the care of the patients and the use of disinfectants is obtained. The nurse service is largely sociologic. In addition to these features, assistance to sociologic organizations and advice relative to the exenditure of relief funds are a large part of the services rendered to each community.

During ten years of this work, over 130,000 cases occurred with approximately 20,000 deaths. Carriers infecting both water and milk have been discovered and placed under surveillance.

By prompt action not only is typhoid morbidity and mortality reduced but also the percentage of carriers is lessened and the foci for future epidemics prevented.

PENNSYLVANIA HEALTH BULLETINS.

1.	July,	1909.	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909.	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909.	The Family Physician.
4.	Oct.,	1909.	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909.	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909.	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910.	Little Dangers to be Avoided in the Daily Fight Against Tuberculosis.
8.	Feb.,	1910.	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910.	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910.	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910.	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910.	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910.	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910.	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910.	Obedience to Natures' Laws the Primary Defence against Disease.
16.	Oct.,	1910.	The Conservation of Infant Life in Pennsylvania.
17.	Nov.	1910.	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910.	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911.	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911.	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911.	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911.	Health.
23.	May,	1911.	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911.	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911.	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911.	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911.	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health..
29.	Nov.,	1911.	The Foundations of State Medicine.
30.	Dec.,	1911.	Experiments Tending to show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912.	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912.	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912.	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912.	How to Organize a Baby-Saving Show.
35.	May,	1912.	Drowning.
36.	June,	1912.	The Health of Suburban Residences.
36½.	July,	1912.	Report of the Austin Disaster.
37.	Aug.,	1912.	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912.	Modern Medicine and the Physician.
39.	Oct.,	1912.	Battling for Health at Mont Alto.
40.	Nov.,	1912.	Tuberculin.
41.	Dec.,	1912.	Conservation of Health. An Address.
42.	Jan.,	1913.	Municipal Sanitation.
43.	Feb.,	1913.	Tuberculosis and Our Schools.
44.	March,	1913.	The Relation of the Undertaker to the Public Health.
45.	April,	1913.	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913.	Troy Typhoid Fever Epidemic.
47.	June,	1913.	The Registration of Vital Statistics a Social Service.
48.	July,	1913.	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913.	Pennsylvania's Health Legislation of 1913.
50.	Sept.,	1913.	Health and Education. An Address.
51.	Oct.,	1913.	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913.	Bathing.
53.	Dec.,	1913.	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914.	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914.	Reproduction and Race Betterment.
56.	March,	1914.	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev. Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914.	Insanitary Bath Tubs and Lavatories.
58.	June,	1914.	On Housing.
59.	July,	1914.	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914.	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914.	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914.	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914.	Effective Rural Sanitation. End Results.
64.	Dec.,	1914.	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915.	Present organization of the State Department of Health.
66.	Feb..	1915.	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915.	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915.	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915.	Flies as a Factor in Infant Mortality.
70.	June,	1915.	Pennsylvania Health Legislation of 1915.
71.	July,	1915.	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915.	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915.	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915.	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915.	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915.	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916. The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78. Feb., 1916. The Sanitary Index. A Method of Measuring Public Health Work.
79. March, 1916. Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80. April, 1916. Pennsylvania and Her Municipalities. An Address before the State Association of Boroughs.
81. May, 1916. The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82. June, 1916. Fifteen Little Talks on Health and Hygiene.
83. July, 1916. Fifteen Little Talks on Health and Hygiene.
84. Aug., 1916. Fifteen Little Talks on Health and Hygiene.
85. Sept., 1916. Fifteen Little Talks on Health and Hygiene.
86. Oct., 1916. Fifteen Little Talks on Health and Hygiene.
87. Nov., 1916. Fifteen Little Talks on Health and Hygiene.
88. Dec., 1916. Fifteen Little Talks on Health and Hygiene.
89. Jan., 1917. Little Talks on Health and Hygiene.
90. Feb., 1917. Little Talks on Health and Hygiene.
91. March, 1917. Little Talks on Health and Hygiene.
92. April, 1917. Little Talks on Health and Hygiene.
93. May, 1917. Insects.
94. June, 1917. Typhoid and Typhophors.
95. July, 1917. Infantile Paralysis,
96. Aug., 1917, Administration in Typhoid Epidemics, as carried out by the Pennsylvania State Department of Health.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.